

EXHIBIT A
Pending Claims in Serial No. 08/951,188 (4200.000200; IOWA:012)

1. (Amended) A DNA segment comprising an isolated coding region that encodes a [substantially full length] P-TEFb subunit, wherein the coding region is characterized as:
 - (a) encoding a [substantially full length] P-TEFb kinase subunit having the amino acid sequence of SEQ ID NO:2; or
 - (b) encoding a [substantially full length] P-TEFb large subunit that includes a contiguous sequence of at least about 7 amino acids from SEQ ID NO:4, SEQ ID NO:45, SEQ ID NO:47 or SEQ ID NO:50; or [as a substantially full length] a coding region that specifically hybridizes to the nucleotide sequence of SEQ ID NO:3, SEQ ID NO:43 or SEQ ID NO:48 [under stringent hybridization conditions].
2. (Amended) The DNA segment of claim 1, wherein said isolated coding region encodes a [substantially full length] P-TEFb kinase subunit having the amino acid sequence of SEQ ID NO:2.
3. (Amended) The DNA segment of claim [1] 2, wherein said isolated coding region has the nucleotide sequence from position 115 to position 1327 of SEQ ID NO:1.
4. (Amended) The DNA segment of claim 1, wherein said isolated coding region encodes a [substantially full length] P-TEFb large subunit that includes a contiguous sequence of at least about 7 amino acids from SEQ ID NO:4, SEQ ID NO:45, SEQ ID NO:47 or SEQ ID NO:50; or [as a substantially full length coding region that] wherein said isolated coding region specifically hybridizes to the nucleotide sequence of SEQ ID NO:3, SEQ ID NO:43 or SEQ ID NO:48 [under stringent hybridization conditions].
5. (Amended) The DNA segment of claim [1] 4, wherein said isolated coding region encodes a [substantially full length] P-TEFb large subunit that includes a contiguous sequence of at least about 7 amino acids from SEQ ID NO:4, SEQ ID NO:45, SEQ ID NO:47 or SEQ ID NO:50 and wherein said coding region specifically hybridizes to the nucleotide sequence of SEQ ID NO:3, SEQ ID NO:43 or SEQ ID NO:48 [under stringent hybridization conditions].
6. (Amended) The DNA segment of claim 4, wherein said isolated coding region encodes a [substantially full length] P-TEFb large subunit that includes a contiguous sequence of at least about 7 amino acids from SEQ ID NO:4, SEQ ID NO:45, SEQ ID NO:47 or SEQ ID NO:50.

7. (Amended) The DNA segment of claim [6] 40, wherein said isolated coding region encodes a P-TEFb large subunit having the amino acid sequence of SEQ ID NO:4, SEQ ID NO:45, SEQ ID NO:47 or SEQ ID NO:50.
8. The DNA segment of claim 7, wherein said isolated coding region encodes a P-TEFb large subunit having the amino acid sequence of SEQ ID NO:45.
9. The DNA segment of claim 7, wherein said isolated coding region encodes a P-TEFb large subunit having the amino acid sequence of SEQ ID NO:47.
10. The DNA segment of claim 7, wherein said isolated coding region encodes a P-TEFb large subunit having the amino acid sequence of SEQ ID NO:50.
11. (Amended) The DNA segment of claim 4, wherein said isolated coding region [is a substantially full length coding region that] specifically hybridizes to the nucleotide sequence of SEQ ID NO:3, SEQ ID NO:43 or SEQ ID NO:48 [under stringent hybridization conditions].
12. The DNA segment of claim 11, wherein said isolated coding region has the nucleotide sequence of SEQ ID NO:44.
13. The DNA segment of claim 11, wherein said isolated coding region has the nucleotide sequence of SEQ ID NO:46.
14. The DNA segment of claim 11, wherein said isolated coding region has the nucleotide sequence of SEQ ID NO:49.
15. (Amended) The DNA segment of claim 1, wherein said DNA segment comprises a first coding region that encodes [a substantially full length] said P-TEFb kinase subunit and a second coding region that encodes [a substantially full length] said P-TEFb large subunit.
16. The DNA segment of claim 15, wherein said second coding region encodes a P-TEFb large subunit that has the amino acid sequence of SEQ ID NO:45, SEQ ID NO:47 or SEQ ID NO:50.
17. (Amended) The DNA segment of claim [16] 15, wherein said first coding region encodes a P-TEFb kinase subunit that has the amino acid sequence of SEQ ID NO:6.

18. (Amended) The DNA segment of claim 16, wherein said second coding region has the nucleotide sequence of SEQ ID NO:44, SEQ ID NO:46 or SEQ ID NO:49[, and wherein said first coding region has the nucleotide sequence of SEQ ID NO:5].

19. (Amended) The DNA segment of claim 1, wherein said isolated coding region is operatively attached to a second coding region that encodes a selected peptide or protein sequence[,] so that said DNA segment [encoding] encodes a P-TEFb subunit fusion protein in which the P-TEFb subunit is linked to said selected peptide or protein.

20. The DNA segment of claim 1, operatively positioned under the control of a promoter.

21. The DNA segment of claim 20, further defined as a recombinant vector.

22. The DNA segment of claim 20, comprised within a recombinant host cell.

23. (Amended) An expression system comprising:

- (a) a first expression unit comprising, under the transcriptional control of a promoter, a first coding region that encodes a [substantially full length] P-TEFb kinase subunit that includes a contiguous sequence of at least about 7 amino acids from SEQ ID NO:2 or SEQ ID NO:6 or that specifically hybridizes to the nucleotide sequence of SEQ ID NO:1 or SEQ ID NO:5; and
- (b) a second expression unit comprising, under the transcriptional control of a promoter, a second coding region that encodes a [substantially full length] P-TEFb large subunit that includes a contiguous sequence of at least about 7 amino acids from SEQ ID NO:4, SEQ ID NO:45, SEQ ID NO:47 or SEQ ID NO:50 or that specifically hybridizes to the nucleotide sequence of SEQ ID NO:3, SEQ ID NO:43 or SEQ ID NO:48.

24. The expression system of claim 23, wherein said first and said second expression units are comprised on a single expression vector.

25. The expression system of claim 23, wherein said first and said second expression units are comprised on two distinct expression vectors.

26. The expression system of claim 23, wherein said expression system is comprised within a recombinant host cell.
27. A recombinant host cell comprising at least a first DNA segment in accordance with claim 1.
28. The recombinant host cell of claim 27, wherein said cell is a prokaryotic host cell.
29. The recombinant host cell of claim 27, wherein said cell is a eukaryotic host cell.
30. The recombinant host cell of claim 27, wherein said cell further comprises an HIV Tat protein.
31. (Amended) The recombinant host cell of claim 27, wherein said cell comprises a first DNA segment that encodes [a substantially full length] said P-TEFb kinase subunit and a second DNA segment that encodes [a substantially full length] said P-TEFb large subunit.
32. The recombinant host cell of claim 31, wherein said first and second DNA segments are comprised within a single expression vector.
33. The DNA segment of claim 6, wherein said isolated coding region encodes a P-TEFb large subunit that includes a contiguous sequence of at least about 10 amino acids from SEQ ID NO:4, SEQ ID NO:45, SEQ ID NO:47 or SEQ ID NO:50.
34. The DNA segment of claim 33, wherein said isolated coding region encodes a P-TEFb large subunit that includes a contiguous sequence of at least about 14 amino acids from SEQ ID NO:4, SEQ ID NO:45, SEQ ID NO:47 or SEQ ID NO:50.
35. The DNA segment of claim 34, wherein said isolated coding region encodes a P-TEFb large subunit that includes a contiguous sequence of at least about 20 amino acids from SEQ ID NO:4, SEQ ID NO:45, SEQ ID NO:47 or SEQ ID NO:50.

36. The DNA segment of claim 35, wherein said isolated coding region encodes a P-TEFb large subunit that includes a contiguous sequence of at least about 30 amino acids from SEQ ID NO:4, SEQ ID NO:45, SEQ ID NO:47 or SEQ ID NO:50.

37. The DNA segment of claim 36, wherein said isolated coding region encodes a P-TEFb large subunit that includes a contiguous sequence of at least about 50 amino acids from SEQ ID NO:4, SEQ ID NO:45, SEQ ID NO:47 or SEQ ID NO:50.

38. The DNA segment of claim 37, wherein said isolated coding region encodes a P-TEFb large subunit that includes a contiguous sequence of at least about 100 amino acids from SEQ ID NO:4, SEQ ID NO:45, SEQ ID NO:47 or SEQ ID NO:50.

39. The DNA segment of claim 38, wherein said isolated coding region encodes a P-TEFb large subunit that includes a contiguous sequence of at least about 150 amino acids from SEQ ID NO:4, SEQ ID NO:45, SEQ ID NO:47 or SEQ ID NO:50.

40. The DNA segment of claim 39, wherein said isolated coding region encodes a P-TEFb large subunit that includes a contiguous sequence of at least about 200 amino acids from SEQ ID NO:4, SEQ ID NO:45, SEQ ID NO:47 or SEQ ID NO:50.

41. The DNA segment of claim 18, wherein said second coding region has the nucleotide sequence of SEQ ID NO:44, SEQ ID NO:46 or SEQ ID NO:49, and wherein said first coding region has the nucleotide sequence of SEQ ID NO:5.

42. The expression system of claim 23, wherein said first expression unit comprises a first coding region that encodes a P-TEFb kinase subunit that includes a contiguous sequence of at least about 7 amino acids from SEQ ID NO:2 or SEQ ID NO:6 and that specifically hybridizes to the nucleotide sequence of SEQ ID NO:1 or SEQ ID NO:5.

43. The expression system of claim 23, wherein said first expression unit comprises a first coding region that encodes a P-TEFb kinase subunit that includes a contiguous sequence of at least about 10 amino acids from SEQ ID NO:2 or SEQ ID NO:6.

44. The expression system of claim 43, wherein said first expression unit comprises a first coding region that encodes a P-TEFb kinase subunit that includes a contiguous sequence of at least about 20 amino acids from SEQ ID NO:2 or SEQ ID NO:6.

45. The expression system of claim 44, wherein said first expression unit comprises a first coding region that encodes a P-TEFb kinase subunit that includes a contiguous sequence of at least about 50 amino acids from SEQ ID NO:2 or SEQ ID NO:6.

46. The expression system of claim 45, wherein said first expression unit comprises a first coding region that encodes a P-TEFb kinase subunit that includes a contiguous sequence of at least about 100 amino acids from SEQ ID NO:2 or SEQ ID NO:6.

47. The expression system of claim 46, wherein said first expression unit comprises a first coding region that encodes a P-TEFb kinase subunit that has the amino acid sequence of SEQ ID NO:2.

48. The expression system of claim 46, wherein said first expression unit comprises a first coding region that encodes a P-TEFb kinase subunit that has the amino acid sequence of SEQ ID NO:6.

49. The expression system of claim 23, wherein said first expression unit comprises a first coding region that specifically hybridizes to the nucleotide sequence of SEQ ID NO:1 or SEQ ID NO:5.

50. The expression system of claim 49, wherein said first expression unit comprises a first coding region that has the nucleotide sequence from position 115 to position 1327 of SEQ ID NO:1.

51. The expression system of claim 49, wherein said first expression unit comprises a first coding region that has the nucleotide sequence of SEQ ID NO:5.

52. The expression system of claim 23, wherein said second expression unit comprises a second coding region that encodes a P-TEFb large subunit that includes a contiguous sequence of at least about 7 amino acids from SEQ ID NO:4, SEQ ID NO:45, SEQ ID NO:47 or SEQ ID NO:50 and that specifically hybridizes to the nucleotide sequence of SEQ ID NO:3, SEQ ID NO:43 or SEQ ID NO:48.

53. The expression system of claim 23, wherein said second expression unit comprises a second coding region that encodes a P-TEFb large subunit that includes a contiguous sequence of at least about 10 amino acids from SEQ ID NO:4, SEQ ID NO:45, SEQ ID NO:47 or SEQ ID NO:50.

54. The expression system of claim 53, wherein said second expression unit comprises a second coding region that encodes a P-TEFb large subunit that includes a contiguous sequence of at least about 20 amino acids from SEQ ID NO:4, SEQ ID NO:45, SEQ ID NO:47 or SEQ ID NO:50.

55. The expression system of claim 54, wherein said second expression unit comprises a second coding region that encodes a P-TEFb large subunit that includes a contiguous sequence of at least about 50 amino acids from SEQ ID NO:4, SEQ ID NO:45, SEQ ID NO:47 or SEQ ID NO:50.

56. The expression system of claim 55, wherein said second expression unit comprises a second coding region that encodes a P-TEFb large subunit that includes a contiguous sequence of at least about 100 amino acids from SEQ ID NO:4, SEQ ID NO:45, SEQ ID NO:47 or SEQ ID NO:50.

57. The expression system of claim 56, wherein said second expression unit comprises a second coding region that encodes a P-TEFb large subunit that has the amino acid sequence of SEQ ID NO:4.

58. The expression system of claim 56, wherein said second expression unit comprises a second coding region that encodes a P-TEFb large subunit that has the amino acid sequence of SEQ ID NO:45.

59. The expression system of claim 56, wherein said second expression unit comprises a second coding region that encodes a P-TEFb large subunit that has the amino acid sequence of SEQ ID NO:47.

60. The expression system of claim 56, wherein said second expression unit comprises a second coding region that encodes a P-TEFb large subunit that has the amino acid sequence of SEQ ID NO:50.

61. The expression system of claim 23, wherein said second expression unit comprises a second coding region that specifically hybridizes to the nucleotide sequence of SEQ ID NO:3, SEQ ID NO:43 or SEQ ID NO:48

62. The expression system of claim 61, wherein said second expression unit comprises a second coding region that has the nucleotide sequence of SEQ ID NO:44.

63. The expression system of claim 61, wherein said second expression unit comprises a second coding region that has the nucleotide sequence of SEQ ID NO:46.

64. The expression system of claim 61, wherein said second expression unit comprises a second coding region that has the nucleotide sequence of SEQ ID NO:49.

65. The recombinant host cell of claim 29, wherein said cell is a mammalian host cell.

66. A recombinant host cell that comprises an expression system in accordance with claim 23.

67. A DNA segment comprising an isolated coding region that encodes a P-TEFb subunit, wherein the coding region is characterized as:

- (a) encoding a P-TEFb kinase subunit having the amino acid sequence of SEQ ID NO:2; or
- (b) encoding a P-TEFb large subunit having the amino acid sequence of SEQ ID NO:4, SEQ ID NO:45, SEQ ID NO:47 or SEQ ID NO:50.

68. A DNA segment comprising an isolated coding region that encodes a P-TEFb subunit, wherein the coding region is characterized as:

- (a) encoding a P-TEFb kinase subunit having the amino acid sequence of SEQ ID NO:2; or
- (b) encoding a P-TEFb large subunit and specifically hybridizing to the nucleotide sequence of SEQ ID NO:3, SEQ ID NO:43 or SEQ ID NO:48.

69. A DNA segment comprising an isolated coding region that encodes a P-TEFb subunit, wherein the coding region is characterized as:

- (a) encoding a P-TEFb kinase subunit and having the nucleotide sequence from position 115 to position 1327 of SEQ ID NO:1; or
- (b) encoding a P-TEFb large subunit and having the nucleotide sequence of SEQ ID NO:44, SEQ ID NO:46 or SEQ ID NO:49.

70. An expression system comprising:

- (a) a first expression unit comprising a promoter that expresses a first coding region that encodes a P-TEFb kinase subunit that has the amino acid sequence of SEQ ID NO:2 or SEQ ID NO:6; and
- (b) a second expression unit comprising a promoter that expresses a second coding region that encodes a P-TEFb large subunit that has the amino acid sequence of SEQ ID NO:4, SEQ ID NO:45, SEQ ID NO:47 or SEQ ID NO:50.

71. An expression system comprising:

- (a) a first expression unit comprising a promoter that expresses a first coding region that encodes a P-TEFb kinase subunit and that specifically hybridizes to the nucleotide sequence of SEQ ID NO:1 or SEQ ID NO:5; and
- (b) a second expression unit comprising a promoter that expresses a second coding region that encodes a P-TEFb large subunit and that specifically hybridizes to the nucleotide sequence of SEQ ID NO:3, SEQ ID NO:43 or SEQ ID NO:48.

72. An expression system comprising:

- (a) a first expression unit comprising a promoter that expresses a first coding region that encodes a P-TEFb kinase subunit and that has the nucleotide sequence from position 115 to position 1327 of SEQ ID NO:1 or the nucleotide sequence of SEQ ID NO:5; and
- (b) a second expression unit comprising a promoter that expresses a second coding region that encodes a P-TEFb large subunit and that has the nucleotide sequence of SEQ ID NO:44, SEQ ID NO:46 or SEQ ID NO:49.

73. A DNA segment comprising an isolated coding region that encodes a substantially full length P-TEFb subunit, wherein the coding region is characterized as:

- (a) encoding a substantially full length P-TEFb kinase subunit having the amino acid sequence of SEQ ID NO:2; or
- (b) encoding a substantially full length P-TEFb large subunit that includes a contiguous sequence of at least about 7 amino acids from SEQ ID NO:4, SEQ ID NO:45, SEQ ID NO:47 or SEQ ID NO:50; or as a substantially full length coding region that hybridizes to the nucleotide sequence of SEQ ID NO:3, SEQ ID NO:43 or SEQ ID NO:48 under stringent hybridization conditions.

74. An expression system comprising:

- (a) a first expression unit comprising, under the transcriptional control of a promoter, a first coding region that encodes a substantially full length P-TEFb kinase subunit that includes a contiguous sequence of at least about 7 amino acids from SEQ ID NO:2 or SEQ ID NO:6 or that hybridizes to the nucleotide sequence of SEQ ID NO:1 or SEQ ID NO:5 under stringent hybridization conditions; and
- (b) a second expression unit comprising, under the transcriptional control of a promoter, a second coding region that encodes a substantially full length P-TEFb large subunit that includes a contiguous sequence of at least about 7 amino acids from SEQ ID NO:4, SEQ ID NO:45, SEQ ID NO:47 or SEQ ID NO:50 or that hybridizes to the nucleotide sequence of SEQ ID NO:3, SEQ ID NO:43 or SEQ ID NO:48 under stringent hybridization conditions.